

## Abstract submission form

1. Each abstract should contain no more than 400 words.
2. Make the title brief, clearly indicating the nature of the investigation. Do not use capital letters.
3. Authors: first name and last name. e.g.: John Smith, start with the presenting author.
4. Affiliations: name of the institutional affiliation, city and country. (no address)
5. The abstract body should be organized as follows:

**Background:** Purpose of the study, preferably one sentence

**Materials and methods:**

**Results:** Summary of results presented in sufficient detail to support the conclusions.  
Results stated in the abstracts must be complete (though concise) and final.

**Conclusion:**

(type or paste the text into the gray areas)

Title	Can functional cardiac age be predicted from ECG in a normal healthy population?		
Authors' names	Vito Starc, Manja Leban, Petra Šinigoj, Miloš Vrhovec, and Todd T. Schlegel		
Affiliations	University of Ljubljana, Faculty of Medicine, Ljubljana, Slovenia, and NASA Johnson Space Center, Houston, TX, USA		
Topic (use the list on the conference website)	Noninvasive Risk Stratification		
Presentation type	Poster <input type="checkbox"/>	Oral <input checked="" type="checkbox"/>	Poster or Oral <input type="checkbox"/>
Check to apply for the YIA competition	<input type="checkbox"/>		
Abstract You will not be able to type more than 2000 characters (with spaces).	<p><b>Background:</b> In a normal healthy population, we desired to determine the most age-dependent conventional and advanced ECG parameters. We hypothesized that changes in several ECG parameters might correlate with age and together reliably characterize the functional age of the heart.</p> <p><b>Methods:</b> An initial study population of 313 apparently healthy subjects was ultimately reduced to 148 subjects (74 men, 84 women, in the range from 10 to 75 years of age) after exclusion criteria. In all subjects, ECG recordings (resting 5-minute 12-lead high frequency ECG) were evaluated via custom software programs to calculate up to 85 different conventional and advanced ECG parameters including beat-to-beat QT and RR variability, waveform complexity, and signal-averaged, high-frequency and spatial/spatiotemporal ECG parameters. The prediction of functional age was evaluated by multiple linear regression analysis using the best 5 univariate predictors.</p> <p><b>Results:</b> Ignoring what were ultimately small differences between males and females, the functional age was found to be predicted (<math>R^2=0.69</math>, <math>P &lt; 0.001</math>) from a linear combination of 5 independent variables: QRS elevation in the frontal plane (<math>p&lt;0.001</math>), a new repolarization</p>		

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	<p>parameter QTcorr (<math>p &lt; 0.001</math>), mean high frequency QRS amplitude (<math>p = 0.009</math>), the variability parameter % VLF of RRV (<math>p = 0.021</math>) and the P-wave width (<math>p = 0.10</math>). Here, QTcorr represents the correlation between the calculated QT and the measured QT signal.</p> <p>Conclusions: In apparently healthy subjects with normal conventional ECGs, functional cardiac age can be estimated by multiple linear regression analysis of mostly advanced ECG results. Because some parameters in the regression formula, such as QTcorr, high frequency QRS amplitude and P-wave width also change with disease in the same direction as with increased age, increased functional age of the heart may reflect subtle age-related pathologies in cardiac electrical function that are usually hidden on conventional ECG.</p>
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